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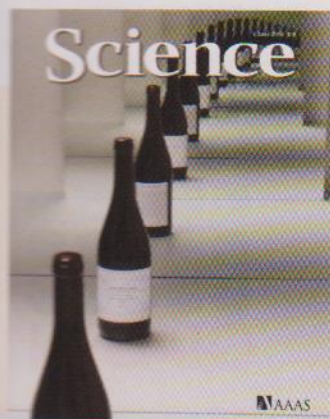
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COVER

Multiple images of an object located between two nearly parallel mirrors illustrate the principle of superradiant emission of x-rays. If an ensemble of atoms between two mirrors is resonantly excited by synchrotron radiation, the atoms interact collectively to emit a fast x-ray photon pulse that exhibits a redshift of its frequency, known as the collective Lamb shift. See page 1248.

Photo: Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany/Boris Kumicak

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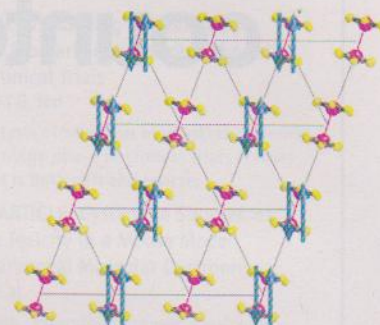
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Thermal conductivity measurements on a novel organic insulator help describe its microscopic electronic structure.
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- 1248 Collective Lamb Shift in Single-Photon Superradiance**
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- 1255 Operation Mechanism of a Molecular Machine Revealed Using Time-Resolved Vibrational Spectroscopy**
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Measuring the travel of a molecular ring along an axle explains its shuttling motion.
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Molecular kinetics shows that hydrogen superoxide is too unstable to play a major role in atmospheric chemistry.
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R. Rodríguez-Muñoz et al.
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- 1272 Permissive Secondary Mutations Enable the Evolution of Influenza Oseltamivir Resistance**
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Compensatory mutations offset the structural costs of acquiring a drug-resistance mutation in a virus.
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- 1285 The Fusogen EFF-1 Controls Sculpting of Mechanosensory Dendrites**
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- 1288 Induction of Fear Extinction with Hippocampal-Infralimbic BDNF**
J. Peters et al.
Pharmacological agents can be used to treat disorders of pathological fear without reactivating the original memory trace.
- 1290 SphK1 Regulates Proinflammatory Responses Associated with Endotoxin and Polymicrobial Sepsis**
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Blockade of an enzyme that promotes inflammation results in protection from lethal sepsis.
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- 1295 Asymmetrical Distribution of the Second Messenger c-di-GMP upon Bacterial Cell Division**
M. Christen et al.
Genetically encoded biosensors visualize the dynamics of a global signaling molecule within bacterial cells.



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***Staphylococcus aureus* Nonribosomal Peptide Secondary Metabolites Regulate Virulence**

M. A. Wyatt et al.

Dipeptides produced by a major bacterial pathogen are essential for successful infection.

DOI:10.1126/science.1188888

An Autophagy-Enhancing Drug Promotes Degradation of Mutant α 1-Antitrypsin Z and Reduces Hepatic Fibrosis

T. Hidvegi et al.

A mouse model of a human liver disease can be treated using a drug known to be well tolerated.

DOI:10.1126/science.1190354

The Landscape of *C. elegans* 3'UTRs

M. Mangone et al.

Genome-wide analysis of the nematode worm indicates a role for complex expression of 3' untranslated regions in development.

DOI:10.1126/science.1191244

Identification of Carbonate-Rich Outcrops on Mars by the Spirit Rover

R. V. Morris et al.

Substantial carbonate concentration in Martian outcrops implies extensive aqueous activity in the past.

DOI:10.1126/science.1189667

Quantized Anomalous Hall Effect in Magnetic Topological Insulators

R. Yu et al.

Magnetically doped topological insulators are predicted to be ferromagnetic and exhibit the quantum anomalous Hall effect.

DOI:10.1126/science.1187485

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New treatment could offer protection after lab accidents—and during outbreaks in Africa.

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RESEARCH ARTICLE: EGF Decreases the Abundance of MicroRNAs That Restrain Oncogenic Transcription Factors

Arghum et al.

Some cancers show decreased abundance of a set of EGF-regulated microRNAs, which allows production of oncogenic transcription factors.

RESEARCH ARTICLE: Transient ATM Kinase Inhibition Disrupts DNA Damage-Induced Sister Chromatid Exchange

J. S. White et al.

Radiation triggers distinct responses in cells in which the kinase ATM is transiently inhibited versus those that have adapted to its loss.

PERSPECTIVE: Ammonia—A Diffusible Factor Released by Proliferating Cells That Induces Autophagy

G. Mariño and G. Kroemer

A volatile metabolic by-product can induce autophagy in an autocrine and paracrine fashion.

NETWATCH: Website for Alternative Splicing Prediction (WASP)

Determine whether particular exons are likely to be spliced under specific cellular conditions; in Bioinformatics Resources.

NETWATCH: Phospho.ELM

Explore a database of eukaryotic phosphorylation sites; in Protein Databases.

EVENTS

Plan your 2010 travel schedule with this list of cell signaling meetings, conferences, and workshops.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

Time to Hire a Housekeeper?

V. Venkatraman

Scientists may need to set traditional gender roles aside and get help for housework.

Taken for Granted: Making a Federal Case of Young Scientists' Concerns

B. L. Benderly

Two issues important to postdocs have been elevated to the federal level.

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Integrating Medicine and Science

EDITORIAL: Translational Science—

A View From a Biotechnology Investor

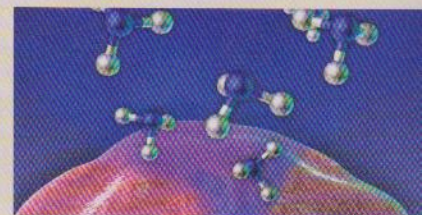
R. Klausner

Venture capital firms that fund biotech companies should replace business plan deal flow with idea flow approaches.

PERSPECTIVE: Tumor-Penetrating Peptides—A Shift from Magic Bullets to Magic Guns

O. Feron

A two-motif cyclic peptide facilitates tumor penetration of conjugated or co-administered drugs.



SCIENCE SIGNALING

Ammonia, a paracrine and autocrine signal.

PERSPECTIVE: Visualizing the Landscape of Selection Biomarkers in Current Phase III Oncology Clinical Trials

R. Sikorski and B. Yao

A global analysis of selection biomarkers currently in use in oncology phase III clinical trials reveals a terrain that is both rich and sparse.

RESEARCH ARTICLE: Cystamine Suppresses Polyalanine Toxicity in a Mouse Model of Oculopharyngeal Muscular Dystrophy

J. E. Davies et al.

Treatment with cystamine improves symptoms of a genetic muscle disease caused by aggregation of a nuclear protein.

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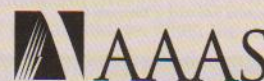
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Science Policy News and Analysis

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